Disclaimer:
The State Energy Office of North Carolina would like to thank the National Energy Services Coalition for allowing the use of this resource for USI participants. A great deal of work went into compiling this information into a single location. As you go through this program and/or have additional questions, please contact Reid Conway reid.conway@ncdenr.gov.

GESPC-U Lesson #116:

Preliminary Commissioning Plan

FYI: Terms and Acronyms can be found on the last page

Summary: The Preliminary Commission Plan, the real-time field validation of the devices and systems, and the components of this plan, including the exact actions and activities to be followed and the integration of the plan into the IGA is explored.

Throughout this course we've been following the performance contracting guidance from the resources available on the website of the State Energy Office of North Carolina. These template instruments represent the documents and principles that have provided guidance for NC's performance contracting success.

As we have progressed, we have reached the point of developing the preliminary commissioning plan and its integration into the IGA. But we want to first make the point that the only reason this plan should be considered preliminary, is that the IGA has yet to be presented and approved. We strongly encourage interactive decision making and project development process throughout the course of the IGA between the owner and the ESCO.

However, from time-to-time changes are made in the final measures to be included that cause modifications to be made in the project. In these cases, the commissioning plan would need to be modified accordingly.

ASHRAE, the American Society of Heating, Refrigerating and Air-Conditioning Engineers defines the commissioning process as a quality-focused process for enhancing the delivery of a project by achieving, validating, and documenting the performance of facility elements in meeting the owner's objectives and criteria. In shorthand, you could say that commissioning is real time field validation that the devices and systems perform as intended.

When we think about the commissioning plan for the devices and systems included in the performance contract, this preliminary plan should include the exact actions and activities that will be followed. The plan should demonstrate functionality along with a plan and description for witnessing, documentation, and signoff, for every measure. Formalizing this process will ensure that the equipment and its operation is doing, and will continue to do, exactly what it was intended to do to fulfill the needs and intent for the owner. In some cases, measures are interdependent upon one another to fulfill the intent.

To illustrate this concept let's consider demand control ventilation as an energy conservation measure. To work effectively, a control strategy must be in place for one or more carbon dioxide or CO_2 sensors to recognize and respond when a CO_2 level threshold deviates from the target level. This would cause the engagement of an actuator motor to modulate open a damper and in some cases turn on a fan to increase the outside air being introduced into a working or learning space to ensure adequate ventilation. The commissioning plan should identify each and every step of the actions and installation parameters

considered to ensure that the HVAC system and its components will operate in such a way so as to be sure the appropriate fresh air is maintained to accommodate the number of people occupying the space while maintaining the agreed upon temperature and humidity ranges. What will be tested, how it will be tested, how it will be documented including witness and signoff forms for each and every measure is the commissioning plan. The design should lay out what was required for each measure, the startup process should ensure that each part works, but the commissioning plan should validate and document that all of the component parts work together, in concert, to deliver the planned outcome.

And once again, if you're using or following these best practices model documents we've referenced, the IGA requires that this preliminary commissioning plan be included. It's a part of the work, it's a part of the price for the IGA, and it's a part of the requirements to complete an IGA and its report and is subject to modification only if any of the measures are changed.

In some projects, Owner's and ESCOs agree to engage the services of a Third-Party commissioning agent. This may be a habit or leftover practice from traditional construction projects where Third-Party party commissioning agents are quite common. However; performance contracting relies on two very specific fundamentals that generally lead to the ESCO performing the commissioning: one is that the ESCO is the sole source provider responsible for both the design and the implementation, therefore the full functionality of every measure; and two, the obligation of a performance guarantee, that the measures will

in fact achieve the guaranteed savings amount relies on the measures performing as designed.

But, remember, commissioning is not just startup. It is the formal field validation of functional requirements. The development of the plan should start at the first consideration of a measure, should be well defined, described in detail and included within the Investment Grade Audit.

Once you feel comfortable with the information above, please scroll down and complete the quiz below. Email your answers to Reid Conway at reid.conway@ncdenr.gov. If you have additional questions, feel free to include them as well.

Lesson 16 Quiz

1. Why is the commissioning plan included in the IGA considered preliminary?

2. What is commissioning?

3. What constitutes a good commissioning plan?

4. True or False; including a preliminary commissioning plan is an optional component of an IGA.

5. Commissioning is an important attribute of a GESPC. Why do ESCOs perform commissioning in GESPC projects?

6. What is the difference between start up and commissioning?

Terms and Acronyms

3rd Party	3rd Party Engineer
COS	Council of State
DOA	NC Department of Administration
DPI	NC Department of Public Instruction
ECM	Energy Conservation Measure
ESA	Energy Services Agreement
ESC	Energy Services Coalition
ESCO	Energy Service Company could be interchangeable with QP
ESPC	Energy Saving Performance Contracting
GEPC	Guaranteed Energy Performance Contracting
GESPC	Guaranteed Energy Saving Performance Contracting
GS	General Statute
GU	Governmental Unit
IGA	Investment Grade Audit
IPMVP	International Performance Measurement and Verification Protocol
LGC	Local Government Commission (Housed in the Treasurer's Office)
LGU	Local Governmental Unit
M and V	Measurement and Verification
OR	Owner's Representative
OSBM	NC Office of State Budget and Management
PC	Performance Contracting
Pre-Bid	Meeting held prior to the bid opening
QP	Qualified Provider could be interchangeable with ESCO
QR	Qualified Reviewer
RFP	Request for Proposal
SEO	State Energy Office
UNC	Refers to the UNC System
USI	Utility Savings Initiative